

WE CLAIM:

1. Apparatus for displaying a plurality of still images, forming an animated display, to a viewer moving substantially at a known velocity relative to said still images substantially along a known trajectory substantially parallel to said still images, said apparatus comprising:

a backboard having a backboard length along said trajectory, said still images being mounted on a surface of said backboard, each of said still images having an actual image width and having an image center; and

a slitboard positioned substantially parallel to said backboard, facing said surface thereof and separated therefrom by a board-to-board distance, said slitboard being mounted at a viewing distance from said trajectory, said board-to-board distance and said viewing distance totaling a backboard distance, said slitboard having a slitboard length along said trajectory, and having a plurality of slits substantially perpendicular to said slitboard length, each said slit corresponding to at least one of said images and having a slit width measured along said slitboard length and a slit center, respective slit centers of adjacent ones of said slits being separated by a frame-to-frame distance; wherein:

in order to display each said image with an apparent image width, said board-to-board distance, said viewing distance and said actual image width are selected so that the product of (a) said actual image width and (b) the quotient of (i) said viewing distance and (ii) said board-to-board distance substantially equals said apparent image width;

in order to project each said image substantially without blurring, said slit width is selected to be at most about one-tenth of said actual image width; said images are illuminated to an image luminance; and

when said viewer is in an environment illuminated to an ambient luminance, said slit width is at least about equal to one-tenth the product of (a) said actual image width, (b) the square of the quotient of said backboard distance and said viewing distance, and (c) the quotient of said ambient luminance and said image luminance.

2. The apparatus of claim 1 further comprising an enclosure for preventing entry of foreign matter between said slitboard and said backboard.

3. The apparatus of claim 1 further comprising a light source for illuminating said images to said image luminance.

4. The apparatus of claim 3 wherein said light source is between said slitboard and said backboard.

5. The apparatus of claim 3 wherein:
said backboard is light-transmissive; and
said backboard is between said light source and said slitboard.

6. Apparatus for displaying a plurality of still images, forming an animated display, to a viewer moving substantially at a known velocity relative to said

still images substantially along a known trajectory substantially parallel to said still images, said apparatus comprising:

a backboard having a backboard length along said trajectory, said still images being mounted on a surface of said backboard, each of said still images having an actual image width and having an image center;

a slitboard positioned substantially parallel to said backboard, facing said surface thereof and separated therefrom by a board-to-board distance, said slitboard being mounted at a viewing distance from said trajectory, said board-to-board distance and said viewing distance totaling a backboard distance, said slitboard having a slitboard length along said trajectory, and having a plurality of slits substantially perpendicular to said slitboard length, each said slit corresponding to at least one of said images and having a slit width measured along said slitboard length and a slit center, respective slit centers of adjacent ones of said slits being separated by a frame-to-frame distance; and

a substantially cylindrical lens in each said slit; wherein:

in order to display each said image with an apparent image width, said board-to-board distance, said viewing distance and said actual image width are selected so that the product of (a) said actual image width and (b) the quotient of (i) said viewing distance and (ii) said board-to-board distance substantially equals said apparent image width;

in order to project each said image substantially without blurring, said slit width is selected to be at most about one-tenth of said actual image width.

7. The apparatus of claim 6 further comprising a light source for illuminating said images.

8. Apparatus for displaying a plurality of still images, forming an animated display, to a viewer moving substantially at a known velocity relative to said still images substantially along a known trajectory substantially parallel to said still images, said apparatus comprising:

a backboard having a backboard length along said trajectory, said still images being mounted on a surface of said backboard, each of said still images having an actual image width and having an image center; and

a slitboard positioned substantially parallel to said backboard, facing said surface thereof and separated therefrom by a board-to-board distance, said slitboard being mounted at a viewing distance from said trajectory, said board-to-board distance and said viewing distance totaling a backboard distance, said slitboard having a slitboard length along said trajectory, and having a plurality of slits substantially perpendicular to said slitboard length, each said slit corresponding to at least one of said images and having a slit width measured along said slitboard length and a slit center, respective slit centers of adjacent ones of said slits being separated by a frame-to-frame distance; wherein:

in order to display each said image with an apparent image width, said board-to-board distance, said viewing distance and said actual image width are selected so that the product of (a) said actual image width and (b) the quotient of (i) said viewing distance and (ii) said

board-to-board distance substantially equals said apparent image width;

in order to project each said image substantially without blurring, said slit width is selected to be at most about one-tenth of said actual image width; and

said trajectory, said backboard and said slitboard are curved.

9. The apparatus of claim 8 further comprising a light source for illuminating said images.

10. The apparatus of claim 8 further comprising an enclosure for preventing entry of foreign matter between said slitboard and said backboard.

11. Apparatus for displaying a plurality of still images, forming an animated display, to a viewer moving substantially at a known velocity relative to said still images substantially along a known trajectory substantially parallel to said still images, said apparatus comprising:

a backboard having a backboard length along said trajectory, said still images being mounted on a surface of said backboard, each of said still images having an actual image width and having an image center;

a slitboard positioned substantially parallel to said backboard, facing said surface thereof and separated therefrom by a board-to-board distance, said slitboard being mounted at a viewing distance from said trajectory, said board-to-board distance and said viewing distance totaling a backboard distance, said slitboard

having a slitboard length along said trajectory, and having a plurality of slits substantially perpendicular to said slitboard length, each said slit corresponding to at least one of said images and having a slit width measured along said slitboard length and a slit center, respective slit centers of adjacent ones of said slits being separated by a frame-to-frame distance; and

an enclosure for preventing entry of foreign matter between said slitboard and said backboard; wherein:

in order to display each said image with an apparent image width, said board-to-board distance, said viewing distance and said actual image width are selected so that the product of (a) said actual image width and (b) the quotient of (i) said viewing distance and (ii) said board-to-board distance substantially equals said apparent image width;

in order to project each said image substantially without blurring, said slit width is selected to be at most about one-tenth of said actual image width.

12. The apparatus of claim 11 wherein said slitboard and said backboard form portions of said enclosure.

13. The apparatus of claim 11 further comprising a respective transparent coverings for each said slit.

14. The apparatus of claim 11 further comprising a light source for illuminating said images.

15. The apparatus of claim 11 wherein said known trajectory is a subway track, said viewer being a passenger on a subway train traveling on said subway track.

16. Apparatus for displaying a plurality of still images, forming an animated display, to a viewer moving substantially at a known velocity relative to said still images substantially along a known trajectory substantially parallel to said still images, said apparatus comprising:

a backboard having a backboard length along said trajectory, said still images being mounted on a surface of said backboard, each of said still images having an actual image width and having an image center; and

a slitboard positioned substantially parallel to said backboard, facing said surface thereof and separated therefrom by a board-to-board distance, said slitboard being mounted at a viewing distance from said trajectory, said board-to-board distance and said viewing distance totaling a backboard distance, said slitboard having a slitboard length along said trajectory, and having a plurality of slits substantially perpendicular to said slitboard length, each said slit corresponding to at least one of said images and having a slit width measured along said slitboard length and a slit center, respective slit centers of adjacent ones of said slits being separated by a frame-to-frame distance; wherein:

in order to display each said image with an apparent image width, said board-to-board distance, said viewing distance and said actual image width are selected so that the product of (a) said actual image width and

(b) the quotient of (i) said viewing distance and (ii) said board-to-board distance substantially equals said apparent image width;

in order to project each said image substantially without blurring, said slit width is selected to be at most about one-tenth of said actual image width; and

said frame-to-frame distance is selected with regard to said known velocity to produce a desired frame rate to be seen by said viewer, said frame rate being at least about 15 frames per second.

17. The apparatus of claim 16 wherein said known trajectory is a subway track, said viewer being a passenger on a subway train traveling on said subway track.

18. The apparatus of claim 16 wherein said known trajectory is a walkway, said viewer being a pedestrian on said walkway.

19. The apparatus of claim 16 wherein said images are curved relative to said backboard and said slitboard.

20. The apparatus of claim 16 wherein said images are inclined relative to said backboard and said slitboard.

21. The apparatus of claim 16 further comprising a light source for illuminating said images.

22. The apparatus of claim 16 further comprising an enclosure for preventing entry of foreign matter between said slitboard and said backboard.

23. Apparatus for displaying a plurality of still images, forming an animated display, to a viewer moving substantially at a known velocity relative to said still images substantially along a known trajectory substantially parallel to said still images, said apparatus comprising:

a backboard having a backboard length along said trajectory, said still images being mounted on a surface of said backboard, each of said still images having an actual image width and having an image center; and

a slitboard positioned substantially parallel to said backboard, facing said surface thereof and separated therefrom by a board-to-board distance, said slitboard being mounted at a viewing distance from said trajectory, said board-to-board distance and said viewing distance totaling a backboard distance, said slitboard having a slitboard length along said trajectory, and having a plurality of slits substantially perpendicular to said slitboard length, each said slit corresponding to at least one of said images and having a slit width measured along said slitboard length and a slit center, respective slit centers of adjacent ones of said slits being separated by a frame-to-frame distance; wherein:

in order to display each said image with an apparent image width, said board-to-board distance, said viewing distance and said actual image width are selected so that the product of (a) said actual image width and

(b) the quotient of (i) said viewing distance and (ii) said board-to-board distance substantially equals said apparent image width;

in order to project each said image substantially without blurring, said slit width is selected to be at most about one-tenth of said actual image width; and

each of said slit centers is directly opposite a respective one of said image centers.

24. Apparatus for displaying a plurality of still images, forming an animated display, to a viewer moving substantially at a known velocity relative to said still images substantially along a known trajectory substantially parallel to said still images, said apparatus comprising:

a backboard having a backboard length along said trajectory, said still images being mounted on a surface of said backboard, each of said still images having an actual image width and having an image center; and

an optical arrangement positioned to transmit light from said images to said viewer along said trajectory, said optical arrangement having optical elements viewed by said viewer at a viewing distance from said trajectory, each respective one of said optical elements being at an optical distance from a respective one of said images and having an element width measured parallel to said trajectory and an element center along said width, respective element centers of adjacent ones of said elements being separated by a frame-to-frame distance; wherein:

in order to display each said image with an apparent image width, said optical distance, said viewing distance and said actual image width are selected so that the product of (a) said actual image width and (b) the quotient of (i) said viewing distance and (ii) said optical distance substantially equals said apparent image width;

in order to project each said image substantially without blurring, said element width is selected to be at most about one-tenth of said actual image width;

said images are illuminated to an image luminance; and

when said viewer is in an environment illuminated to an ambient luminance, said element width is at least about equal to one-tenth the product of (a) said actual image width, (b) the square of the quotient of (i) the sum of said viewing distance and said optical distance and (ii) said viewing distance, and (c) the quotient of said ambient luminance and said image luminance.

25. The apparatus of claim 24 wherein at least one of said optical elements is a mirror.